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UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

**2010**

**SAMPLE COSTS TO PRODUCE  
COMMON DRY  
BEANS**



**SAN JOAQUIN VALLEY - NORTH**  
**Double Cropped**

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## SAMPLE COSTS TO PRODUCE COMMON DRY BEANS San Joaquin Valley - North 2010

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### INTRODUCTION

Sample costs to produce common dry beans in the northern San Joaquin Valley are shown in this study. The study is intended as a guide only, and can be used to make production decisions, determine potential returns, prepare budgets and evaluate production loans. The practices described are based on production operations considered typical for this crop and region, but will not apply to every farm. Sample costs for labor, materials, equipment, and custom services are based on current figures. “Your Costs” columns in Tables 1 and 2 are provided for entering your farm costs.

The hypothetical farm operations, production practices, overhead, and calculations are described under the assumptions. For additional information or an explanation of the calculations used in the study call the Department of Agricultural and Resource Economics, University of California, Davis, California, (530) 752-3589 or the local UC Cooperative Extension office.

Current and archived Sample Cost of Production Studies for many commodities can be downloaded at <http://coststudies.ucdavis.edu>, requested through the Department of Agricultural and Resource Economics, UC Davis, (530) 752-6887 or obtained from the local county UC Cooperative Extension offices.

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## ASSUMPTIONS

The assumptions refer to Tables 1 through 7 and pertain to sample costs to produce common dry beans in the northern San Joaquin Valley. The cultural practices described and materials used are considered typical for a well-managed bean field in the region. The costs, materials, and practices will not apply to all situations every production year. Cultural practices vary among growers within the region and can be significant. The study is intended as a guide only. **The use of trade names and cultural practices in this report does not constitute an endorsement or recommendation by the University of California nor is any criticism implied by omission of other similar products or cultural practices.**

**Farm.** This report is based on a 1,200 non-contiguous acre field and row crop farm on which 200 acres of rented land are planted to common dry beans, double cropped with winter cereal or winter forage. The remaining 1,000 acres of rented and grower owned land is planted to alfalfa hay, field corn, tomatoes, and wheat. The grower maintains an equipment yard and shop on a portion of the owned land.

### Production Cultural Practices and Material Inputs

**Land Preparation.** For single crop beans, primary tillage, which includes chiseling, disking, land finishing (laser and triplane), and listing beds is done between October and May. For double-cropped beans, except for laser leveling, the operations are done in June. The land is chiseled 12 to 16 inches deep. The field is then disced three times to create an adequate seedbed, and leveled in one pass with a triplane. Although the fields are basically level, the fields are laser leveled once every four years and being the ground is double cropped each year, one-eighth of the cost is charged to the current bean crop. The beds are listed and preplant fertilizer applied by a custom operator/fertilizer company in a single operation. Herbicides are applied following the preirrigation and prior to planting.

**Plant.** Several varieties of bush and vine common dry beans in the following classes are available for planting: light and dark red kidney, black turtle, cranberry, canario, and pinto. Common dry bean seeds treated with protectants are planted during June using a six-row bean planter. Beans are usually planted 4 to 6 seeds per foot in a single row on 30-inch beds or 69,696 to 104,544 seeds per acre. Seed size varies among varieties and classes ranging from 775 to 4,000 seeds per pound. In this study the beans at 75 pounds per acre (kidney seeds) are planted one to two inches deep into moist soil five to six seeds per foot on 30-inch beds and will emerge in seven to ten days depending on soil temperature. Planting costs include the seed, tractor driver and one attendant on the planter.

**Irrigation.** Irrigation includes the water costs and irrigation labor. Water at \$40 per acre-foot (\$3.33 per acre inch) is assumed to be a typical cost. Water costs in the region range from \$10 to \$75 per acre-foot. Most growers use surface water and the cost will vary by water district. The bean field is furrow irrigated with one pre-irrigation averaging 4 to 6 inches depending on the previous crop and 4 to 6 irrigations during the growing season from June/July to September. A total of 30 acre-inches of water, which includes the preplant irrigation, is applied. Ditches are made for the preirrigation, and then closed prior to planting. Ditches are made again after the cultivation and closed prior to harvest. Water is delivered from the ditches to the furrows by siphon pipes.

**Fertilization.** Nitrogen (N) recommendations range from 80 to 120 units per acre. All or part of the nitrogen requirement (as UN32, aqua ammonia, or anhydrous ammonia) is banded during listing using two shanks, 6-inches to each side of the seed row. Also during bed listing along with the nitrogen, 4-10-10 starter fertilizer at 209 pounds per acre (20 gallons) plus one quart of zinc is banded two-inches below and two-inches to the side of the seed row. Additional nitrogen can be sidedressed once the beans have reached the three to four

leaf stage. Although not included in the study, soil amendments with gypsum or sulfur products are a routine practice and may be necessary every three to four years.

**Pest Management.** The pesticides and rates mentioned in this cost study are listed in *UC Integrated Pest Management Guidelines, Beans*. For more information on other pesticides available, pest identification, monitoring, and management visit the UC IPM website at [www.ipm.ucdavis.edu](http://www.ipm.ucdavis.edu). For information and pesticide use permits, contact the local county agricultural commissioner's office. **Pesticides mentioned in this study are used to calculate rates and costs. Although growers commonly use the pesticides mentioned, other pesticides are available. Check with your Farm Advisor, PCA and/or the UC IPM website for current recommendations.** Spray adjuvants are an additional cost and may be necessary for use with many pesticides for effective control. They are assumed to be included in the pesticide cost in this study. Pesticide costs vary by location, brand, and grower volume. Pesticide costs in this study are taken from a single dealer and shown as full retail.

*Pest Control Adviser (PCA).* The PCA monitors the field for agronomic problems including pests, diseases, and nutritional status. Growers may hire private consultants on a per acre basis or receive the service as part of an agreement with an agricultural chemical and fertilizer company. Separate costs for a PCA are not included in this study.

*Weeds.* Herbicides -- Dual Magnum and Treflan -- are applied after the preirrigation and prior to planting to the listed beds and furrows, then incorporated with a rolling cultivator – the first pass applies and incorporates the herbicides (spray boom and cultivator attached to tractor); the second pass is for further incorporation. The beans are cultivated twice in July before row closure approximately two and four weeks after bean emergence. After the ditches are made, all turning is done inside the field.

*Insects.* The major insect pests are twospotted (*Tetranychus urticae*), strawberry (*Tetranychus turkestani*) and pacific spider (*Tetranychus pacificus*) mites, lygus bugs (*Lygus hesperus*, *Lygus elisus*), black bean and cow pea aphid (*Aphis fabae*, *Aphis craccivora*). Comite (*propargite*) miticide for mite control is applied in July at the last cultivation. Lygus bugs are controlled with an aerial application of a pyrethroid insecticide [e.g. Warrior (*Lambda-cyhalothrin*)] during bloom to pod fill (August). Lygus populations are monitored during this period and treatments are made when lygus counts reach 1.5 lygus per sweep. Aphids can build to large populations during pod development. Control measures include Dimethoate that can often times be applied in combination with a Lygus treatment. Insecticides and application dates will vary according to planting dates and insect infestation. In some years, control of corn earworms and armyworms may be needed to prevent seed damage during pod fill. The grower applies the ground application and an aerial applicator applies the air application.

*Diseases.* Seedling diseases caused by rhizoctonia (*Rhizoctonia solani*) and pythium (*Pythium* spp.) root rot are prevented using good cultural practices. Additional benefits may be gained with seed treatments. The fungicide seed protectants are applied to the seed by the bean warehouse and the cost is included in the seed price.

**Harvest.** The beans are cut and threshed in September by a custom operator. At maturity six rows per pass are cut at ground level with a set of tractor-mounted knives. One to two days later, depending on bean moisture, the cut beans are raked into windrows consisting of six to eight rows. Common beans are harvested using bean threshers. Beans are ready for harvest when they reach 15% seed moisture. Cutting and windrowing costs \$38 per acre and threshing/harvesting costs \$2.50 per hundredweight (cwt) based on field or dirt weight plus hauling at \$0.70 per cwt. Other postharvest bean costs include warehouse charges of \$3.10 per cwt for cleaning, storage and insurance.

**Yields.** The crop yield used in this study is 27 cwt field/dirt weight or 25 cwt per acre of cleaned beans at 12% moisture and is assumed that it is representative of the various bean classes. Specific yield data by class was not available to the authors. A typical cleanout rate for field run beans is 5-10%.

**Returns.** An average selling price of \$40 per cwt is used to calculate income. Prices from the 2007 to 2009 San Joaquin County Annual Crop Report for all dry bean classes ranged from \$35 to \$50 per cwt. Prices to growers will vary by market and contracts. The prices are used to show a range of returns over a range of yields in the Ranging Analysis, Table 4.

**Assessments.** The California Dry Bean Board (CDBB) assesses \$0.175 per hundredweight (cwt) to all bean varieties (general assessment). Varietal councils formed for specific research on that variety make additional assessments. Common beans are assessed \$0.03 per hundredweight. The CDBB promotes marketing and research in dry beans.

**Pickup/ATV.** Costs for a 1/2-ton pickup and ATV are included in the study. The pickup and ATV may be used by the irrigator, field foreman and/or the grower. The pickup travels 9,000 miles per year (1,500 miles for the beans) and the ATV 3,000 miles per year (500 miles for the beans). The miles are not based on any actual data, but the assumptions are used to calculate a vehicle cost for this study.

### **Labor, Equipment & Interest**

**Labor.** Labor rates of \$14.39 per hour for machine operators and \$11.65 for general labor includes payroll overhead of 37%. The basic hourly wages are \$10.50 for machine operators and \$8.50 for general labor. The overhead includes the employers' share of federal and California state payroll taxes, workers' compensation insurance for field crops (code 0171), and a percentage for other possible benefits. Workers' compensation costs will vary among growers. For this study the cost is based upon the average industry final rate as of January 1, 2010 (personal email from California Department of Insurance, March 2010). Labor for operations involving machinery are 20% higher than the operation time given in Table 1 to account for the extra labor involved in equipment set up, moving, maintenance, work breaks, and field repair.

Wages for management are not included as a cash cost. Any return above total costs is considered a return to management and risk. However, growers wanting to account for management may wish to add a fee. The manager makes all production decisions including cultural practices, action to be taken on pest management recommendations, and labor.

**Equipment Operating Costs.** Repair costs are based on purchase price, annual hours of use, total hours of life, and repair coefficients formulated by American Society of Agricultural Engineers (ASAE). Fuel and lubrication costs are also determined by ASAE equations based on maximum Power Take Off (PTO) horsepower, and fuel type. Prices for on-farm delivery of diesel and gasoline are \$2.04 and \$2.67 per gallon, respectively. The cost includes a 2.5% local sales tax on diesel fuel and 7.5% sales tax on gasoline. Gasoline also includes federal and state excise tax, which are refundable for on-farm use when filing your income tax. The fuel, lube, and repair cost per acre for each operation in Table 1 is determined by multiplying the total hourly operating cost in Table 6 for each piece of equipment used for the selected operation by the hours per acre. Tractor time is 10% higher than implement time for a given operation to account for setup, travel and down time. Fuel prices have fluctuated considerably and may be higher or lower on any given day.

**Interest on Operating Capital.** Interest on operating capital is based on cash operating costs and is calculated monthly until harvest at a nominal rate of 5.75% per year. A nominal interest rate is the typical market cost of borrowed funds. The interest cost of post harvest operations is discounted back to the last harvest month using a negative interest charge. The interest rate will vary depending upon various factors. The rate in this study is considered a typical lending rate by a farm lending agency as of January 2010.

**Risk.** Production risks should not be minimized. While this study makes every effort to model a production system based on typical, real world practices, it cannot fully represent financial, agronomic and market risks, which affect the profitability and economic viability of bean production. Crop insurance is available to reduce risk against crop losses.

### **Cash Overhead**

Cash overhead consists of various cash expenses paid out during the year that are assigned to the whole farm and not to a particular operation.

**Property Taxes.** Counties charge a base property tax rate of 1% on the assessed value of the property. In some counties special assessment districts exist and charge additional taxes on property including equipment, buildings, and improvements. For this study, county taxes are calculated as 1% of the average value of the property. Average value equals new cost plus salvage value divided by 2 on a per acre basis.

**Insurance.** Insurance for farm investments varies depending on the assets included and the amount of coverage. Property insurance provides coverage for property loss and is charged at 0.767% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs \$1,405 for the entire farm.

**Office Expense.** Office and business expenses are estimated at \$50 per acre. These expenses include office supplies, telephones, bookkeeping, accounting, legal fees, shop and office utilities, and miscellaneous administrative charges. The cost is a general estimate and not based on any actual data.

**Crop Insurance.** The grower, to protect the farm from crop losses, purchases crop insurance. Several levels of coverage are available, but the premium as calculated by a crop insurance agency is based on kidney beans at the 75% level and cost the San Joaquin County grower \$26.40 per acre. The premium cost includes the base premium less the subsidized premium amount.

**Land Rent.** The 200 acres are rented for cash at \$200 per acre. The rented land includes the irrigation system that is maintained by the landlord. Cash rent ranges from \$150 to \$250 per acre (2009 Trends & Leases) depending on crop, location and soil type.

**Investment Repairs.** Annual maintenance is calculated as two percent of the purchase price.

### **Non-Cash Overhead**

Non-Cash overhead is calculated as the capital recovery cost for equipment and other farm investments.

**Capital Recovery Costs.** Capital recovery cost is the annual depreciation and interest costs for a capital investment. It is the amount of money required each year to recover the difference between the purchase price and salvage value (unrecovered capital). It is equivalent to the annual payment on a loan for the investment with the down payment equal to the discounted salvage value. This is a more complex method of calculating ownership costs than straight-line depreciation and opportunity costs, but more accurately represents the annual costs of ownership because it takes the time value of money into account (Boehlje and Eidman). The formula for the calculation of the annual capital recovery costs is  $((\text{Purchase Price} - \text{Salvage Value}) \times \text{Capital Recovery Factor}) + (\text{Salvage Value} \times \text{Interest Rate})$ .

*Salvage Value.* Salvage value is an estimate of the remaining value of an investment at the end of its useful life. For farm machinery (tractors and implements) the remaining value is a percentage of the new cost of the investment (Boehlje and Eidman). The percent remaining value is calculated from equations developed by the American Society of Agricultural Engineers (ASAE) based on equipment type and years of life. The life in years is estimated by dividing the wear out life, as given by ASAE by the annual hours of use in this operation. For other investments including irrigation systems, buildings, and miscellaneous equipment, the value at the end of its useful life is zero. The salvage value for land is the purchase price because land does not depreciate. The purchase price and salvage value for equipment and investments are shown in the tables.

*Capital Recovery Factor.* Capital recovery factor is the amortization factor or annual payment whose present value at compound interest is 1. The amortization factor is a table value that corresponds to the interest rate used and the life of the machine.

*Interest Rate.* The interest rate of 4.75% used to calculate capital recovery cost is the suggested basic rate by a farm lending agency as of January 2010. The rate will vary depending upon loan amount and other lending agency conditions.

**Buildings.** The metal building(s) are constructed on a cement slab totaling 2,400 square feet and are used for shop and/or storage.

**Tools.** This includes shop tools, hand tools, and miscellaneous field tools. The tools are an estimated value and not taken from any specific data.

**Siphon Tubes.** It is assumed the grower owns 720, 2-inch siphon tubes for use on the ranch.

**Fuel Tanks.** Two 300-gallon fuel tanks using gravity feed are on metal stands. The tanks are setup in a cement containment pad that meets federal, state, and county regulations.

**Land Values.** Being the beans are planted on rented land, land values are not shown in this study. Cropland owned by the grower in the northern San Joaquin Valley (San Joaquin County) ranges in value from \$8,000 to \$15,000 per acre (2009 Trends & Leases).

**Equipment.** Farm equipment is purchased new or used, but the study shows the current purchase price for new equipment. The new purchase price is adjusted to 60% to indicate a mix of new and used equipment. Annual ownership costs for equipment and other investments are shown in the Whole Farm Annual Equipment, Investment, and Business Overhead Costs table. Equipment costs are composed of three parts: non-cash overhead, cash overhead, and operating costs. Both of the overhead factors have been discussed in previous sections. The operating costs consist of repairs, fuel, and lubrication and are discussed under operating costs.

**Table Values.** Due to rounding, the totals may be slightly different from the sum of the components.

## REFERENCES

- Agricultural Commissioner. *Agricultural Reports, 2005, 2006, 2007, 2008*. San Joaquin County Agricultural Commissioners Office, Stockton, CA.
- American Society of Agricultural Engineers. 1994. *American Society of Agricultural Engineers Standards Yearbook*. Russell H. Hahn and Evelyn E. Rosentreter (ed.) St. Joseph, Missouri. 41st edition.
- Boehlje, Michael D., and Vernon R. Eidman. 1984. *Farm Management*. John Wiley and Sons. New York, New York
- California Chapter of the American Society of Farm Managers and Rural Appraisers. 2009. *Trends in Agricultural Land & Lease Values*. Region Three. California Chapter of The American Society of Farm Managers and Rural Appraisers. Woodbridge, CA
- California State Board of Equalization. *Fuel Tax Division Tax Rates*. Internet accessed January 2010. <http://www.boe.ca.gov/sptaxprog/spftdrates.htm>
- Canevari, W Mick, Karen M. Klonsky, and Richard L. De Moura. 2005. *Sample Cost to Produce Common Dry Beans, San Joaquin Valley*. UC Cooperative Extension, Davis, CA.
- Energy Information Administration. 2009. *Weekly Retail on Highway Gasoline and Diesel Prices*. Internet accessed January 2010. <http://tonto.eia.doe.gov/oog/info/wohdp>
- Smith, Jerry D., W. H. Isom, H. Agamalian, W. Bendixen, V. Burton, M. Canevari, M. Murray, and M. Vilchez. 1989. *Common Dry Bean Production in California*. Cooperative Extension. University of California. Division of Agriculture and Natural Resources. Oakland, California. Publication 21468.
- University of California Statewide IPM Project. 2008. *UC Pest Management Guidelines, Dry Beans*. University of California, Davis CA. <http://www.ipm.ucdavis.edu>

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**Table 1. COSTS PER ACRE TO PRODUCE COMMON DRY BEANS**  
 SAN JOAQUIN VALLEY – North 2010

| Operation   | Operation<br>Time<br>(Hrs/A) | Cash and Labor Costs per Acre |                         |                  |                 |       | Total<br>Cost | Your<br>Cost |
|---|------------------------------|-------------------------------|-------------------------|------------------|-----------------|-------|---------------|--------------|
|   |                              | Labor<br>Cost                 | Fuel, Lube<br>& Repairs | Material<br>Cost | Custom/<br>Rent |       |               |              |
| <b>Cultural:</b>  |                              |                               |                         |                  |                 |       |               |              |
| <b>Land Prep:</b> Laser Level 1X/4Yr or 1X/8 Crops                            | 0.00                         | 0                             | 0                       | 0                | 20              | 20    |               |              |
| <b>Land Prep:</b> Chisel  | 0.13                         | 2                             | 5                       | 0                | 0               | 8     |               |              |
| <b>Land Prep:</b> Disc 3X   | 0.41                         | 7                             | 18                      | 0                | 0               | 25    |               |              |
| <b>Land Prep:</b> Triplane 1X   | 0.12                         | 2                             | 2                       | 0                | 0               | 4     |               |              |
| <b>Land Prep:</b> List Beds   | 0.00                         | 0                             | 0                       | 0                | 20              | 20    |               |              |
| <b>Fertilize:</b> at bed listing (Aqua, 4-10-10 + Zn)                         | 0.00                         | 0                             | 0                       | 88               | 0               | 88    |               |              |
| <b>Irrigate:</b> Pull Ditch 2X  | 0.10                         | 2                             | 4                       | 0                | 0               | 6     |               |              |
| <b>Irrigate:</b> Pre-irrigation   | 0.50                         | 6                             | 0                       | 20               | 0               | 26    |               |              |
| <b>Irrigate:</b> Close Ditch 2X   | 0.10                         | 2                             | 1                       | 0                | 0               | 3     |               |              |
| <b>Weed:</b> Apply & Incorporate Preplant Herbicide (Treflan, Dual), 1st pass | 0.33                         | 6                             | 5                       | 38               | 0               | 49    |               |              |
| <b>Weed:</b> Incorporate Preplant herbicide, 2nd pass                         | 0.33                         | 6                             | 5                       | 0                | 0               | 11    |               |              |
| <b>Plant:</b> Beans   | 0.25                         | 7                             | 5                       | 56               | 0               | 68    |               |              |
| <b>Weed:</b> Cultivate & Furrow 2X  | 0.28                         | 5                             | 4                       | 0                | 0               | 9     |               |              |
| <b>Irrigate:</b> District Water 4X  | 2.00                         | 23                            | 0                       | 80               | 0               | 103   |               |              |
| <b>Insect:</b> Mites (Comite) Ground  | 0.13                         | 2                             | 2                       | 30               | 0               | 34    |               |              |
| <b>Insect:</b> Lygus (Warrior) Air  | 0.00                         | 0                             | 0                       | 13               | 16              | 29    |               |              |
| <b>Insect:</b> Aphid (Dimethoate) Air   | 0.00                         | 0                             | 0                       | 9                | 16              | 25    |               |              |
| <b>Pickup:</b> (bean business)  | 0.17                         | 3                             | 2                       | 0                | 0               | 5     |               |              |
| <b>ATV:</b> (bean business)   | 0.17                         | 3                             | 0                       | 0                | 0               | 3     |               |              |
| <b>TOTAL CULTURAL COSTS</b>   | 5.02                         | 75                            | 54                      | 333              | 72              | 534   |               |              |
| <b>Harvest:</b>   |                              |                               |                         |                  |                 |       |               |              |
| Cut & Rake Beans  | 0.00                         | 0                             | 0                       | 0                | 38              | 38    |               |              |
| Thresh Beans & Haul   | 0.00                         | 0                             | 0                       | 0                | 86              | 86    |               |              |
| Clean, Bag, Store, Insurance  | 0.00                         | 0                             | 0                       | 0                | 78              | 78    |               |              |
| Assessments   | 0.00                         | 0                             | 0                       | 5                | 0               | 5     |               |              |
| <b>TOTAL HARVEST COSTS</b>  | 0.00                         | 0                             | 0                       | 5                | 202             | 207   |               |              |
| Interest on operating capital @ 5.75%   |                              |                               |                         |                  |                 | 10    |               |              |
| <b>TOTAL OPERATING COSTS/ACRE</b>   |                              | 75                            | 54                      | 338              | 273             | 751   |               |              |
| <b>CASH OVERHEAD:</b>   |                              |                               |                         |                  |                 |       |               |              |
| Liability Insurance   |                              |                               |                         |                  |                 | 1     |               |              |
| Office Expense  |                              |                               |                         |                  |                 | 50    |               |              |
| Land Rent   |                              |                               |                         |                  |                 | 200   |               |              |
| Crop Insurance  |                              |                               |                         |                  |                 | 26    |               |              |
| Property Taxes  |                              |                               |                         |                  |                 | 2     |               |              |
| Property Insurance  |                              |                               |                         |                  |                 | 1     |               |              |
| Investment Repairs  |                              |                               |                         |                  |                 | 2     |               |              |
| <b>TOTAL CASH OVERHEAD COSTS</b>  |                              |                               |                         |                  |                 | 283   |               |              |
| <b>TOTAL CASH COSTS/ACRE</b>  |                              |                               |                         |                  |                 | 1,034 |               |              |
| <b>NON-CASH OVERHEAD:</b>   |                              |                               |                         |                  |                 |       |               |              |
|   |                              | Per Producing                 |                         | Annual Cost      |                 |       |               |              |
|   |                              | Acre                          |                         | Capital Recovery |                 |       |               |              |
| Buildings   |                              | 67                            |                         | 4                |                 | 4     |               |              |
| Fuel Tanks  |                              | 4                             |                         | 0                |                 | 0     |               |              |
| Shop Tools  |                              | 13                            |                         | 1                |                 | 1     |               |              |
| Siphon Tubes  |                              | 7                             |                         | 1                |                 | 1     |               |              |
| Equipment   |                              | 236                           |                         | 25               |                 | 25    |               |              |
| <b>TOTAL NON-CASH OVERHEAD COSTS</b>  |                              | 327                           |                         | 31               |                 | 31    |               |              |
| <b>TOTAL COSTS/ACRE</b>   |                              |                               |                         |                  |                 | 1,065 |               |              |

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**Table 2. COSTS and RETURNS PER ACRE TO PRODUCE COMMON DRY BEANS**  
 SAN JOAQUIN VALLEY – North 2010

|  | Quantity/<br>Acre | Unit | Price or<br>Cost/Unit | Value or<br>Cost/Acre | Your<br>Cost |
|--|-------------------|------|-----------------------|-----------------------|--------------|
| <b>GROSS RETURNS: Common Dry Beans</b>   | 25.00             | cwt  | 40.00                 | 1,000                 |              |
| <b>OPERATING COSTS</b>                   |                   |      |                       |                       |              |
| <b>Custom:</b>                           |                   |      |                       |                       |              |
| Laser Level (1X/4 Yr or 1X/8 Crops)      | 0.13              | acre | 150.00                | 20                    |              |
| List Beds                                | 1.00              | acre | 20.00                 | 20                    |              |
| Application - Air (insecticide)          | 2.00              | acre | 16.00                 | 32                    |              |
| Cutting & Windrow                        | 1.00              | acre | 38.00                 | 38                    |              |
| Threshing (field/dirt weight)            | 27.00             | cwt  | 2.50                  | 68                    |              |
| Haul (field/dirt weight)                 | 27.00             | cwt  | 0.70                  | 19                    |              |
| Clean, Store, Insurance                  | 25.00             | cwt  | 3.10                  | 78                    |              |
| <b>Fertilizer:</b>                       |                   |      |                       |                       |              |
| 4-10-10 (10.45 lbs/gal)                  | 209.00            | lb   | 0.13                  | 27                    |              |
| Zinc Chelate 6%                          | 0.25              | gal  | 12.80                 | 3                     |              |
| Aqua Ammonia 20-0-0                      | 120.00            | lb N | 0.48                  | 58                    |              |
| <b>Irrigation:</b>                       |                   |      |                       |                       |              |
| Water                                    | 30.00             | acin | 3.33                  | 100                   |              |
| <b>Herbicide:</b>                        |                   |      |                       |                       |              |
| Dual Magnum                              | 1.50              | pint | 20.28                 | 30                    |              |
| Treflan HFP                              | 1.50              | pint | 4.84                  | 7                     |              |
| <b>Seed:</b>                             |                   |      |                       |                       |              |
| Common Dry (treated with protectants)    | 75.00             | lb   | 0.75                  | 56                    |              |
| <b>Insecticide:</b>                      |                   |      |                       |                       |              |
| Comite                                   | 2.00              | pint | 14.80                 | 30                    |              |
| Warrior                                  | 4.00              | floz | 3.21                  | 13                    |              |
| Dimethoate 4E                            | 1.00              | pint | 8.64                  | 9                     |              |
| <b>Assessment:</b>                       |                   |      |                       |                       |              |
| Dry Bean Board (general assessment)      | 25.00             | cwt  | 0.18                  | 4                     |              |
| Dry Bean Board (varietal assessment)     | 25.00             | cwt  | 0.03                  | 1                     |              |
| Labor (machine)                          | 3.01              | hrs  | 14.39                 | 43                    |              |
| Labor (non-machine)                      | 2.75              | hrs  | 11.65                 | 32                    |              |
| Fuel - Gas                               | 0.67              | gal  | 2.67                  | 2                     |              |
| Fuel - Diesel                            | 16.62             | gal  | 2.04                  | 34                    |              |
| Lube                                     |                   |      |                       | 5                     |              |
| Machinery repair                         |                   |      |                       | 13                    |              |
| Interest on operating capital @ 5.75%    |                   |      |                       | 10                    |              |
| <b>TOTAL OPERATING COSTS/ACRE</b>        |                   |      |                       | <b>751</b>            |              |
| <b>NET RETURNS ABOVE OPERATING COSTS</b> |                   |      |                       | <b>249</b>            |              |
| <b>CASH OVERHEAD COSTS:</b>              |                   |      |                       |                       |              |
| Liability Insurance                      |                   |      |                       | 1                     |              |
| Office Expense                           |                   |      |                       | 50                    |              |
| Land Rent Beans                          |                   |      |                       | 200                   |              |
| Crop Insurance                           |                   |      |                       | 26                    |              |
| Property Taxes                           |                   |      |                       | 2                     |              |
| Property Insurance                       |                   |      |                       | 1                     |              |
| Investment Repairs                       |                   |      |                       | 2                     |              |
| <b>TOTAL CASH OVERHEAD COSTS/ACRE</b>    |                   |      |                       | <b>283</b>            |              |
| <b>TOTAL CASH COSTS/ACRE</b>             |                   |      |                       | <b>1,034</b>          |              |

UC COOPERATIVE EXTENSION  
**Table 2. CONTINUED**  
 SAN JOAQUIN VALLEY – North 2010

|  | Quantity/<br>Acre | Unit | Price or<br>Cost/Unit | Value or<br>Cost/Acre | Your<br>Cost |
|--|-------------------|------|-----------------------|-----------------------|--------------|
| NON-CASH OVERHEAD COSTS (Capital Recovery) |                   |      |                       |                       |              |
| Building                                   |                   |      |                       | 4                     |              |
| Fuel Tanks                                 |                   |      |                       | 0                     |              |
| Shop Tools                                 |                   |      |                       | 1                     |              |
| Siphon Tubes                               |                   |      |                       | 1                     |              |
| Equipment                                  |                   |      |                       | 25                    |              |
| <b>TOTAL NON-CASH OVERHEAD COSTS/ACRE</b>  |                   |      |                       | <b>31</b>             |              |
| <b>TOTAL COSTS/ACRE</b>                    |                   |      |                       | <b>1,065</b>          |              |
| <b>NET RETURNS ABOVE TOTAL COSTS</b>       |                   |      |                       | <b>-65</b>            |              |

UC COOPERATIVE EXTENSION  
**Table 3. MONTHLY CASH COSTS PER ACRE TO PRODUCE COMMON DRY BEANS**  
 SAN JOAQUIN VALLEY – North 2010

|   | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | TOTAL |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|
| Beginning NOV 09  |     |     |     |     |     |     |     |     |     |     |     |     |       |
| Ending OCT 10   | 09  | 09  | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  | 10  |       |
| Cultural:   |     | *   | *   | *   | *   | *   | *   | *   |     |     |     |     |       |
| <b>Land Prep:</b> Laser Level 1X/4Yr  | 20  |     |     |     |     |     |     |     |     |     |     |     | 20    |
| <b>Land Prep:</b> Chisel  |     |     |     |     |     |     |     | 8   |     |     |     |     | 8     |
| <b>Land Prep:</b> Disc 3X   |     |     |     |     |     |     |     | 25  |     |     |     |     | 25    |
| <b>Land Prep:</b> Triplane 1X   |     |     |     |     |     |     |     | 4   |     |     |     |     | 4     |
| <b>Land Prep:</b> List Beds   |     |     |     |     |     |     |     | 20  |     |     |     |     | 20    |
| <b>Fertilize:</b> at bed listing (Aqua, 4-10-10 + Zn)                         |     |     |     |     |     |     |     | 88  |     |     |     |     | 88    |
| <b>Irrigate:</b> Pull Ditch 2X  |     |     |     |     |     |     |     | 3   | 3   |     |     |     | 6     |
| <b>Irrigate:</b> Pre-irrigation   |     |     |     |     |     |     |     | 26  |     |     |     |     | 26    |
| <b>Irrigate:</b> Close Ditch 2X   |     |     |     |     |     |     |     | 2   |     |     | 2   |     | 3     |
| <b>Weed:</b> Apply & Incorporate Preplant Herbicide (Treflan, Dual), 1st pass |     |     |     |     |     |     |     | 49  |     |     |     |     | 49    |
| <b>Weed:</b> Incorporate Preplant herbicide, 2nd pass                         |     |     |     |     |     |     |     | 11  |     |     |     |     | 11    |
| <b>Plant:</b> Beans   |     |     |     |     |     |     |     | 68  |     |     |     |     | 68    |
| <b>Weed:</b> Cultivate & Furrow 2X  |     |     |     |     |     |     |     |     | 9   |     |     |     | 9     |
| <b>Irrigate:</b> Water & Labor 4X   |     |     |     |     |     |     |     |     | 26  | 52  | 26  |     | 103   |
| <b>Insect:</b> Mites (Comite) Ground  |     |     |     |     |     |     |     |     | 34  |     |     |     | 34    |
| <b>Insect:</b> Lygus (Warrior) Air  |     |     |     |     |     |     |     |     |     | 29  |     |     | 29    |
| <b>Insect:</b> Aphid (Dimethoate) Air   |     |     |     |     |     |     |     |     |     | 25  |     |     | 25    |
| <b>Pickup:</b> (bean business)  | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 5     |
| <b>ATV:</b> (bean business)   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 3     |
| <b>TOTAL CULTURAL COSTS</b>   | 20  | 1   | 1   | 1   | 1   | 1   | 1   | 303 | 72  | 106 | 28  | 0   | 534   |
| <b>Harvest:</b>   |     |     |     |     |     |     |     |     |     |     |     |     |       |
| Cut & Rake Beans  |     |     |     |     |     |     |     |     |     |     |     | 38  | 38    |
| Thresh Beans & Haul   |     |     |     |     |     |     |     |     |     |     |     | 86  | 86    |
| Clean, Bag, Store & Insurance   |     |     |     |     |     |     |     |     |     |     |     | 78  | 78    |
| Assessments   |     |     |     |     |     |     |     |     |     |     |     | 5   | 5     |
| <b>TOTAL HARVEST COSTS</b>  |     |     |     |     |     |     |     |     |     |     |     | 207 | 207   |
| Interest on operating capital @ 5.75%   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 2   | 2   | 2   | 4   |     | 10    |
| <b>TOTAL OPERATING COSTS/ACRE</b>   | 20  | 1   | 1   | 1   | 1   | 1   | 1   | 305 | 74  | 108 | 239 | 0   | 751   |
| <b>OVERHEAD:</b>  |     |     |     |     |     |     |     |     |     |     |     |     |       |
| Liability Insurance   |     |     | 1   |     |     |     |     |     |     |     |     |     | 1     |
| Office Expense  | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   | 5   |     | 50    |
| Land Rent   |     |     |     |     |     |     |     |     |     |     |     | 200 | 200   |
| Crop Insurance  |     |     |     |     |     |     | 26  |     |     |     |     |     | 26    |
| Property Taxes  |     |     | 1   |     |     |     |     |     | 1   |     |     |     | 2     |
| Property Insurance  |     |     | 1   |     |     |     |     |     | 1   |     |     |     | 1     |
| Investment Repairs  | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 0   | 2     |
| <b>TOTAL CASH OVERHEAD COSTS</b>  | 5   | 5   | 8   | 5   | 5   | 5   | 31  | 5   | 6   | 5   | 5   | 200 | 283   |
| <b>TOTAL CASH COSTS/ACRE</b>  | 25  | 6   | 8   | 6   | 6   | 6   | 32  | 310 | 80  | 113 | 243 | 200 | 1,034 |

\*Double Cropped with Winter Cereal or Forage grown during this period

UC COOPERATIVE EXTENSION  
**Table 4. RANGING ANALYSIS FOR COMMON DRY BEANS**  
 SAN JOAQUIN VALLEY – North 2010

COSTS PER ACRE AT VARYING YIELDS TO PRODUCE COMMON DRY BEANS

|   | YIELD (cwt)  |              |              |              |              |              |              |
|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
|   | 19.00        | 21.00        | 23.00        | 25.00        | 27.00        | 29.00        | 31.00        |
| <b>OPERATING COSTS/ACRE:</b>              |              |              |              |              |              |              |              |
| Cultural Cost                             | 534          | 534          | 534          | 534          | 534          | 534          | 534          |
| Harvest Cost (Cut, Windrow, Thresh, Haul) | 104          | 111          | 117          | 124          | 131          | 138          | 145          |
| Harvest Cost (Clean, Bag, Store)          | 59           | 65           | 71           | 78           | 84           | 90           | 96           |
| Assessments                               | 4            | 4            | 5            | 5            | 6            | 6            | 6            |
| Interest on operating capital @ 5.75%     | 10           | 10           | 10           | 10           | 10           | 11           | 11           |
| <b>TOTAL OPERATING COSTS/ACRE</b>         | <b>711</b>   | <b>724</b>   | <b>737</b>   | <b>751</b>   | <b>765</b>   | <b>779</b>   | <b>792</b>   |
| <b>TOTAL OPERATING COSTS/cwt</b>          | <b>37.43</b> | <b>34.48</b> | <b>32.05</b> | <b>30.04</b> | <b>28.34</b> | <b>26.87</b> | <b>25.55</b> |
| <b>CASH OVERHEAD COSTS/ACRE</b>           | <b>283</b>   | <b>283</b>   | <b>283</b>   | <b>283</b>   | <b>283</b>   | <b>283</b>   | <b>283</b>   |
| <b>TOTAL CASH COSTS/ACRE</b>              | <b>994</b>   | <b>1,007</b> | <b>1,020</b> | <b>1,034</b> | <b>1,048</b> | <b>1,062</b> | <b>1,075</b> |
| <b>TOTAL CASH COSTS/cwt</b>               | <b>52.32</b> | <b>47.96</b> | <b>44.35</b> | <b>41.36</b> | <b>38.82</b> | <b>36.62</b> | <b>34.68</b> |
| <b>NON-CASH OVERHEAD COSTS/ACRE</b>       | <b>31</b>    | <b>31</b>    | <b>31</b>    | <b>31</b>    | <b>31</b>    | <b>31</b>    | <b>31</b>    |
| <b>TOTAL COSTS/ACRE</b>                   | <b>1,025</b> | <b>1,038</b> | <b>1,051</b> | <b>1,065</b> | <b>1,079</b> | <b>1,093</b> | <b>1,106</b> |
| <b>TOTAL COSTS/cwt</b>                    | <b>53.95</b> | <b>49.43</b> | <b>45.70</b> | <b>42.60</b> | <b>39.97</b> | <b>37.69</b> | <b>35.68</b> |

NET RETURNS PER ACRE ABOVE OPERATING COSTS

| PRICE<br>\$/cwt | YIELD (cwt) |       |       |       |       |       |       |
|-----------------|-------------|-------|-------|-------|-------|-------|-------|
|                 | 19.00       | 21.00 | 23.00 | 25.00 | 27.00 | 29.00 | 31.00 |
| 24.00           | -255        | -220  | -185  | -151  | -117  | -83   | -48   |
| 28.00           | -179        | -136  | -93   | -51   | -9    | 33    | 76    |
| 32.00           | -103        | -52   | -1    | 49    | 99    | 149   | 200   |
| 36.00           | -27         | 32    | 91    | 149   | 207   | 265   | 324   |
| 40.00           | 49          | 116   | 183   | 249   | 315   | 381   | 448   |
| 44.00           | 125         | 200   | 275   | 349   | 423   | 497   | 572   |
| 48.00           | 201         | 284   | 367   | 449   | 531   | 613   | 696   |

NET RETURNS PER ACRE ABOVE CASH COSTS

| PRICE<br>\$/cwt | YIELD (cwt) |       |       |       |       |       |       |
|-----------------|-------------|-------|-------|-------|-------|-------|-------|
|                 | 19.00       | 21.00 | 23.00 | 25.00 | 27.00 | 29.00 | 31.00 |
| 24.00           | -538        | -503  | -468  | -434  | -400  | -366  | -331  |
| 28.00           | -462        | -419  | -376  | -334  | -292  | -250  | -207  |
| 32.00           | -386        | -335  | -284  | -234  | -184  | -134  | -83   |
| 36.00           | -310        | -251  | -192  | -134  | -76   | -18   | 41    |
| 40.00           | -234        | -167  | -100  | -34   | 32    | 98    | 165   |
| 44.00           | -158        | -83   | -8    | 66    | 140   | 214   | 289   |
| 48.00           | -82         | 1     | 84    | 166   | 248   | 330   | 413   |

NET RETURNS PER ACRE ABOVE TOTAL COSTS

| PRICE<br>\$/cwt | YIELD (cwt) |       |       |       |       |       |       |
|-----------------|-------------|-------|-------|-------|-------|-------|-------|
|                 | 19.00       | 21.00 | 23.00 | 25.00 | 27.00 | 29.00 | 31.00 |
| 24.00           | -569        | -534  | -499  | -465  | -431  | -397  | -362  |
| 28.00           | -493        | -450  | -407  | -365  | -323  | -281  | -238  |
| 32.00           | -417        | -366  | -315  | -265  | -215  | -165  | -114  |
| 36.00           | -341        | -282  | -223  | -165  | -107  | -49   | 10    |
| 40.00           | -265        | -198  | -131  | -65   | 1     | 67    | 134   |
| 44.00           | -189        | -114  | -39   | 35    | 109   | 183   | 258   |
| 48.00           | -113        | -30   | 53    | 135   | 217   | 299   | 382   |

UC COOPERATIVE EXTENSION  
**Table 5. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS**  
 SAN JOAQUIN VALLEY – North 2010

ANNUAL EQUIPMENT COSTS

| Yr                | Description              | Price   | Yrs<br>Life | Salvage<br>Value | Capital<br>Recovery | Cash Overhead  |       | Total  |
|-------------------|--------------------------|---------|-------------|------------------|---------------------|----------------|-------|--------|
|                   |                          |         |             |                  |                     | Insur-<br>ance | Taxes |        |
| 10                | 215 HP Tractor Track     | 240,000 | 10          | 70,892           | 25,003              | 1,192          | 1,554 | 27,749 |
| 10                | 95 HP Tractor MFWD       | 62,968  | 10          | 18,600           | 6,560               | 313            | 408   | 7,280  |
| 10                | ATV 4WD                  | 5,128   | 10          | 1,515            | 534                 | 25             | 33    | 593    |
| 10                | Blade Rear 8'            | 3,500   | 10          | 619              | 398                 | 16             | 21    | 434    |
| 10                | Chisel 15 ft             | 9,500   | 10          | 1,680            | 1,080               | 43             | 56    | 1,179  |
| 10                | Cultivator Rolling 6 Row | 11,500  | 12          | 1,593            | 1,178               | 50             | 65    | 1,293  |
| 10                | Cultivator Sled 6 Row    | 10,153  | 12          | 1,406            | 1,040               | 44             | 58    | 1,142  |
| 10                | Disc – Finish 18'        | 26,548  | 12          | 3,677            | 2,719               | 116            | 151   | 2,986  |
| 10                | Disc – Stubble 16'       | 21,618  | 12          | 2,994            | 2,214               | 94             | 123   | 2,431  |
| 10                | Ditcher – V              | 4,505   | 12          | 624              | 461                 | 20             | 26    | 507    |
| 10                | Pickup ¾ Ton             | 28,000  | 10          | 8,271            | 2,917               | 139            | 181   | 3,237  |
| 10                | Planter-6 Row            | 21,848  | 10          | 3,864            | 2,484               | 99             | 129   | 2,712  |
| 10                | Saddle Tanks 2-200g      | 5,033   | 10          | 890              | 572                 | 23             | 30    | 625    |
| 10                | Spray Boom – 20'         | 1,220   | 10          | 216              | 139                 | 6              | 7     | 151    |
| 10                | Triplane – 16'           | 20,341  | 12          | 2,817            | 2,083               | 89             | 116   | 2,288  |
| TOTAL             |                          | 471,862 |             | 119,658          | 49,382              | 2,268          | 2,958 | 54,608 |
| 60% of New Cost * |                          | 283,117 |             | 71,795           | 29,629              | 1,361          | 1,775 | 32,765 |

\*Used to reflect a mixture of new and used equipment

ANNUAL INVESTMENT COSTS

| Description              | Price   | Yrs<br>Life | Salvage<br>Value | Capital<br>Recovery | Cash Overhead  |       |         | Total  |
|--------------------------|---------|-------------|------------------|---------------------|----------------|-------|---------|--------|
|                          |         |             |                  |                     | Insur-<br>ance | Taxes | Repairs |        |
| Building(s) 2,400 sqft   | 80,000  | 30          | 0                | 5,057               | 306            | 400   | 1,600   | 7,363  |
| Fuel Tanks 2-300 gal     | 4,800   | 20          | 0                | 377                 | 18             | 24    | 96      | 515    |
| Shop Tools               | 15,000  | 20          | 0                | 1,178               | 58             | 75    | 300     | 1,611  |
| Siphon Tubes 720, 2-inch | 8,820   | 10          | 0                | 1,128               | 34             | 44    | 176     | 1,382  |
| TOTAL INVESTMENT         | 108,620 |             | 0                | 7,740               | 416            | 543   | 2,172   | 10,872 |

ANNUAL BUSINESS OVERHEAD COSTS

| Description                | Units/<br>Farm | Unit | Price/<br>Unit | Total<br>Cost |
|----------------------------|----------------|------|----------------|---------------|
| Crop Insurance (75% Level) | 200            | acre | 26.40          | 5,280         |
| Land Rent Beans            | 200            | acre | 200.00         | 40,000        |
| Liability Insurance        | 1,200          | acre | 1.17           | 1,404         |
| Office Expense             | 1,200          | acre | 50.00          | 60,000        |

UC COOPERATIVE EXTENSION  
**Table 6. HOURLY EQUIPMENT COSTS**  
 SAN JOAQUIN VALLEY - North 2010

| Yr Description              | Actual        | Cash Overhead       |                |       | Operating |                |                | Total<br>Costs/Hr. |
|-----------------------------|---------------|---------------------|----------------|-------|-----------|----------------|----------------|--------------------|
|                             | Hours<br>Used | Capital<br>Recovery | Insur-<br>ance | Taxes | Repairs   | Fuel &<br>Lube | Total<br>Oper. |                    |
| 10 215 HP Tractor Track     | 1,600         | 9.38                | 0.45           | 0.58  | 6.38      | 29.27          | 35.65          | 46.06              |
| 10 95 HP Tractor MFWD       | 1,200         | 3.28                | 0.16           | 0.20  | 1.25      | 10.94          | 12.19          | 15.83              |
| 10 ATV 4WD                  | 200           | 1.60                | 0.08           | 0.10  | 0.37      | 0.92           | 1.29           | 3.07               |
| 10 Blade Rear 8'            | 200           | 1.19                | 0.05           | 0.06  | 0.58      | 0.00           | 0.58           | 1.88               |
| 10 Chisel 15'               | 200           | 3.24                | 0.13           | 0.17  | 2.02      | 0.00           | 2.02           | 5.56               |
| 10 Cultivator Rolling 6 Row | 166           | 4.25                | 0.18           | 0.23  | 2.41      | 0.00           | 2.41           | 7.07               |
| 10 Cultivator Sled 6 Row    | 166           | 3.75                | 0.16           | 0.21  | 2.12      | 0.00           | 2.12           | 6.24               |
| 10 Disc - Finish 18'        | 166           | 9.84                | 0.42           | 0.55  | 4.31      | 0.00           | 4.31           | 15.12              |
| 10 Disc - Stubble 16'       | 166           | 7.98                | 0.34           | 0.44  | 3.51      | 0.00           | 3.51           | 12.27              |
| 10 Ditcher - V              | 166           | 1.67                | 0.07           | 0.09  | 1.25      | 0.00           | 1.25           | 3.08               |
| 10 Pickup 3/4 Ton           | 200           | 8.74                | 0.42           | 0.54  | 2.05      | 11.51          | 13.56          | 23.26              |
| 10 Planter-6 Row            | 150           | 9.94                | 0.39           | 0.51  | 6.02      | 0.00           | 6.02           | 16.86              |
| 10 Saddle Tanks 2-200g      | 800           | 0.43                | 0.02           | 0.02  | 0.01      | 0.00           | 0.01           | 0.48               |
| 10 Spray Boom - 20'         | 150           | 0.55                | 0.02           | 0.03  | 0.33      | 0.00           | 0.33           | 0.93               |
| 10 Triplane - 16'           | 250           | 5.00                | 0.21           | 0.28  | 3.11      | 0.00           | 3.11           | 8.60               |

UC COOPERATIVE EXTENSION  
**Table 7. OPERATIONS WITH EQUIPMENT**  
 SAN JOAQUIN VALLEY – North 2010

| Operation                                  | Operation Month | Tractor      | Implement  | Material         | Broadcast Rate/acre | Unit |
|--|-----------------|--------------|--|------------------|---------------------|------|
| Cultural:                                  |                 |              |  |                  |                     |      |
| Land Prep: Laser Level 1X/4Yr              | October         | Custom       |  |                  |                     |      |
| Land Prep: Chisel                          | June            | 215 HP Track | Chisel 15'   |                  |                     |      |
| Land Prep: Stubble Disc                    | June            | 215 HP Track | Stubble Disc 16'                                     |                  |                     |      |
| Land Prep: Finish Disc 2X                  | June            | 215 HP Track | Disc Finish 18'                                      |                  |                     |      |
| Land Prep: Triplane                        | June            | 95 HP MFWD   | Triplane 16'   |                  |                     |      |
| Land Prep: List Beds & Preplant Fertilizer | June            | Custom       |  | Aqua             | 120                 | lb N |
|  |                 |              |  | 4-10-10 (20 gal) | 209.00              | lb   |
|  |                 |              |  | Zinc 6%          | 0.25                | gal  |
| Irrigate: Pull Ditch 2X                    | June            | 215 HP Track | V-Ditcher  |                  |                     |      |
|  | July            | 215 HP Track | V-Ditcher  |                  |                     |      |
| Irrigate: Close Ditch                      | June            | 95 HP MFWD   | Rear Blade   |                  |                     |      |
|  | Sept            | 95 HP MFWD   | Rear Blade   |                  |                     |      |
| Irrigate: Pre-irrigation                   | June            |              |  | Water            | 6.00                | acin |
| Irrigate: 4X                               | July            |              |  | Water            | 6.00                | acin |
|  | Aug             |              |  | Water            | 12.00               | acin |
|  | Sept            |              |  | Water            | 6.00                | acin |
| Weed: Preplant (Treflan, Dual)             | June            | 95 HP MFWD   | Rolling Cultivator<br>Saddle Tanks<br>Spray Boom 20' | Dual             | 1.50                | pt   |
|  |                 |              |  | Treflan          | 1.50                | pt   |
| Weed: Incorporate Herbicide                | June            | 95 HP MFWD   | Rolling Cultivator                                   |                  |                     |      |
| Weed: Cultivate & Furrow                   | July            | 95 HP MFWD   | Sled Cultivator 6 Row                                |                  |                     |      |
|  | July            | 95 HP MFWD   | Sled Cultivator 6 Row                                |                  |                     |      |
| Plant: Common Dry Bean Seed                | June            | 95 HP MFWD   | Planter 6 Row  | Seed             | 75.00               | lb   |
| Insect: Mites (Comite)                     | July            | 95 HP MFWD   | Saddle Tanks<br>Spray Boom 20'                       | Comite           | 2.00                | pt   |
| Insect: Lygus (Warrior)                    | Aug             | Custom       | Air  | Warrior          | 4.00                | floz |
| Insect: Aphid (Dimethoate)                 | Aug             | Custom       | Air  | Dimethoate       | 1.00                | pt   |
| Harvest: Cut & Rake                        | Sept            | Custom       |  |                  |                     |      |
| Harvest: Thresh Beans & Haul               | Sept            | Custom       |  |                  |                     |      |
| Harvest: Clean, Bag, Store, Insurance      | Sept            | Custom       |  |                  |                     |      |